

ENTAM - Test Report



Sprayer type:
Trade mark:
Model:

Trailed air assisted sprayer
Lochmann
RPS 15/90 UQH2

Manufacturer:
Lochmann Plantatec GmbH-Srl
Vilpianer Straße 42
39010 Nals (BZ)
ITALY

Test report: D - 2132

Assessment table

No.	Contents	Assessment
1	Spray tank surface roughness	++
2	Spray tank over volume	+
3	Volume of total residual (here max. allowed 30 l)	++
4	Spray tank contents gauge up to 20% Filling	+
5	Spray tank contents gauge from > 20% Filling	++
6	Agitation system	+
7	Pressure drop between manometer and nozzle	+
8	Deviation of single nozzle output from table	+
9	Accuracy of pressure gauge	+
10	Liquid flow rate left / right	+++
11	Rinsing water tank*	+
12	Deviation stated / measured air volume	+++

Tab.1+2: Assessment table and assessment keys of important test results. *) with sprayer in horizontal position

No.	unit	+	++	+++	No.	unit	+	++	+++
1	µm	>70-100	30-70	<30	10	%	4-5	2-<4	0-<2
2	%	5-8	>8-12	>12	11	% nominal tank volume	10-12	>12-14	>14
3	of al- low.value	>2/3-3/3	1/3-2/3	<1/3	12	%	8-10	5 - < 8	< 5
4	%	7.5-5.0	<5.0-2.5	<2.5					
5	%	5.0-4.0	<4.0-2.0	<2.0					
6	%	>10-15	5-10	<5					
7	%	>7-10	3-7	<3					
8	%	>7-10	3-7	<3					
9	bar	>0.10-0.20	>0.05-0.10	0.00-0.05					

Free download of the test under: www.ENTAM.net
or www.julius-kuehn.de

Technical data of sprayer

- 900 mm axial fan with deflector device.
- 2 speed gearbox, PTO shaft driven.
- Air intake between tank and fan.
- One side electric driven air cover for border spraying (optional).
- 18 nozzle stations.

- 110 l wash water.



Fig.1: Overview.

- Pump „Comet IDS 1401“
with 138 l/min at 12 bar.
- Steering drawbar.

- 1500 l polythylene tank.
- Tube contents indicators.
- Liquid pressure agitation system.

Dimensions and weights :

total length:	3560mm
height:	2460 mm
width:	1360 mm
unloaded weight:	762 kg

Description of sprayer



Fig.2: 900mm axial fan with air deflector device.

The framework of the sprayer is made of steel profiles (hot-dip galvanised) with the tank situated on the top. The overall width of the sprayer is 1360 mm. The sprayer is designed for a road speed of 25 km/h. The sprayer coupling is designed for the use with the traktor lower linkage arms.

The spray tank with a nominal volume of 1500 l is made of plastic (polyethelene) and is designed without splash walls. The tank keeps an over volume of 6.5 % to hold back foam. The clean water tank for rinsing and diluting holds a volume of 110 l. The hand wash tank for the operator has a volume of 15.5 l.

For showing the liquid level in the tank, two level indicator tubes (front + left side) are existing.

The inside of the spray tank is cleaned by two rotating cleaning nozzles (brass) which are situated at the front and rear wall of the tank. The sprayer has a combined pressure and return agitator. The pressure agitator, which can be switched off, consists of a stainless steel tube with bore holes. The tube is situated in driving direction on the right side above the tank bottom with the holes geared to spread the liquid horizontal to the left tank side.

The axial fan is equipped with plastic fan blades and a housing of galvanized sheet steel. The UQH2 fan sucks the air from the front of the fan (between tank and fan housing). The fan is driven by the PTO shaft.

Optionally an electric driven air cover shield, operated from the driver's place can be ordered. It's aim is to cover the fan opening at one side to distribute the droplets on that sprayer side without air assistance. This helps to reduce drift while spraying at the border of the orchard. To adjust the air speed better to the thickness and height of the leave wall, the fan drive has a 2 speed gearbox (with freewheel position).

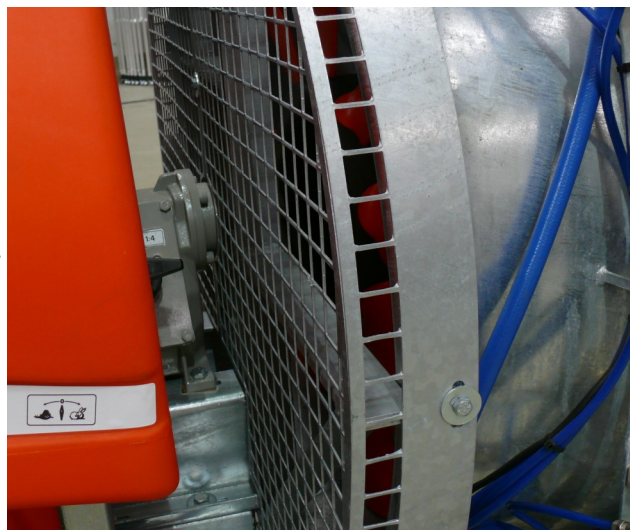


Fig.3: Air intake and gearbox of the fan.

Description of sprayer



Fig.4: PTO driven pump and tank with contents indicator.

The sprayer is equipped with double swivel nozzle bodies made of brass to which the nozzle ends are attached. Each nozzle can be switched OFF separately by manually turning the nozzle body.

The electric driven valves are manually operated at the control panel which can be located in the tractor cabin. It consists of a central switch for shutting off both spray sections (left and right), spray section valves for opening the left or the right spray section, a pressure regulation device (pressure variation by switches) and a pressure gauge. A spray gun and a

sprayer washing system can be connected to the free outlet at the pump (ball valve).



Fig.5: Switchbox with pressure gauge (below).
(Above) optional switchbox for air cover shield.

Description of sprayer

left sprayer side

right sprayer side

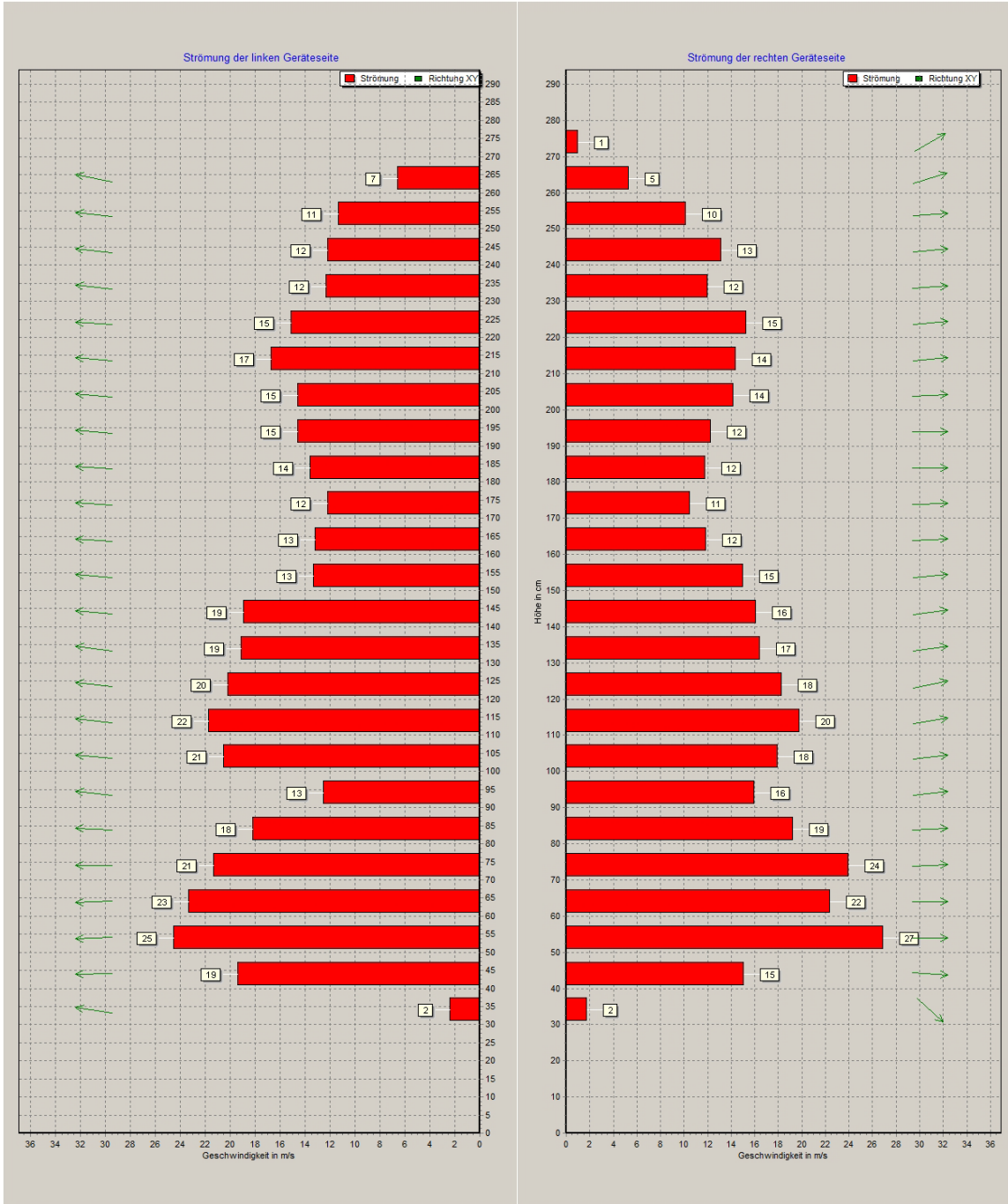


Fig.6: Air speed characteristic of the 90UQH2 (fast gear, 50 cm from outlet). Speed in (m/s) shown in the figures at the end of the red bars.

Result table

tested assembly			result (measured)	
spray tank	over volume		6.5 %	* min. 5 %
	contents gauge	graduation marks	50	* max. 100 l
		deviation	6.5 %	* max. 7.5 % between 150 l and 300 l
	3.9 %		* max. 5 % between > 300 l and 1500 l	
surface roughness		0.037 mm**	* max 0.1 mm	
rinsing tank	volume		110 l	* 10 times delutable residual (with horizontal sprayer)
	rinsing and dilution possible?		yes	
	Cleaning performance (main tank) (concentration after cleaning)		2708	Min.factor 400 of concentration before cleaning
can rinsing equipment		rinsing efficiency	no induction bowl	* max. 0.01 % of can contents
manometer	graduation marks		0.2 bar	* max. 0.2 bar
	deviation		-0.15bar	* max. 0.2 bar
agitation system	deviation from even concentration		13.6 %	*max. 15 %
residual in l		dilutable	11.2 l***	* max. 30 l
		non dilutable	0.46 l	
pressure loss between manometer and nozzle at 10 bar pressure			- 9.0 %	* max. 10 %
nozzle dripping after switch off			0 ml	* max. 2 ml
Deviation liquid flow rate left / right (10 bar) with Albuz AVI 80-015			0.6 %	*max. 5 %
Measured air volume (slow gear)			21000 m ³ /h	*max. 10 % deviation to stated value
Measured air volume (fast gear)			28000 m ³ /h	

Tab.3: Result table

* limit

** 0.008mm at inner surface

*** 5.2 l with horizontal sprayer

Explanation on testing:

Testing takes place according to the Technical Instructions for ENTAM-Tests of Air Assisted Sprayers (Rel.5). This procedure was developed by the competent testing authorities of the European countries participating in ENTAM and is based on the standard EN ISO 16119. This test is only a technical performance test which takes place without an accompanying field test. The test results apply only to the tested appurtenances of the sprayer. Statements on the behaviour of the sprayer with different appurtenances cannot be derived from these results.

Responsibility and recognition



Performing competent authority:
 Julius Kühn-Institute (Germany)
 Institute for Application Techniques in Plant Protection
 Messeweg 11-12
 D-38104 Braunschweig

This test is recognized by the ENTAM members:



HBLFA Francisco Josephinum 008/2018
BLT Wieselburg
 (Austria)



CMA Generalitat de Catalunya EPHP 03/18
 Centre de Mecanització Agrària (CMA)
 (Spain)



ENAMA Ente Nazionale per la Meccanizzazione ENTAM „Rapporto di Agricola
 (Italy) prova prestazionale“ 05/2018



HIAE (MGI) Hungarian Institute of Agricultural D-171/2018
 Engineering
 (Hungary)



IRSTEA - National Research Institute of Science IRSTEA/CEMAGREF/ENTAM/
 and Technology for Environment and Agriculture 18/005
 (France)



PIMR - Przemyslowy Instytut Maszyn PIMR-186/ENTAM/18
 Rolniczych Industrial Institute of Agricultural
 Engineering
 (Poland)